

IN VITRO SALT RELEASE FROM MODEL CHEESES VARYING IN TEXTURE AND AROMA

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ABSTRACT

Health authorities recommend a reduction in salt (NaCl) and fat contents in food. Reducing such components without affecting food acceptability is a major challenge because of their multi functional properties. A strategy to compensate for salt reduction sensorially is to improve in-mouth salt release. We performed a study to evaluate salt release in cheese-like products in conditions that mimic food oral processing. Model cheeses were prepared according to a full-factorial design with two levels of fat (20%, 40%), salt (0.5%, 1.5%), and pH at renneting (5.0, 6.2) and were flavoured or not. Experiment was carried out with a sophisticated chewing simulator through 10 masticatory cycles with injection of artificial saliva, while salt release was measured online using a conductivity probe. Results showed that salt release kinetic was influenced by products composition and structure, while the addition of aroma had no effect. Low-fat model cheese showed higher release as shown by the *area under the conductivity curve* (auc), 93,39 (a.u). Products containing higher salt content had higher auc, 103.89 (a.u), as well as those made at low pH, 102,78 (a.u). Fat content and pH at renneting had a complex interaction effect on salt release suggesting an influence of product firmness and protein network strength, but also a barrier effect of fat. Therefore, beyond the initial salt content of the product, which is directly linked to the level of salt release during chewing, the modification of fat content and or pH at renneting may help to compensate salt reduction in cheesy products.

Key words: fat, salt, pH, conductivity, artificial mouth.